

**Table 2-H-12**  
**Sacramento to Bakersfield – High-Speed Train Alignment Evaluation Matrix**  
**Merced to Fresno Alignment**

**Alignment** = Alignment Carried Forward

**Alignment** = Alignment Eliminated

= Primary or Secondary Reason for Elimination

Evaluation Criteria	UPRR (Downtown Merced to Downtown Fresno)	W99 (Merced Downtown to Fresno West)	BNSF (Downtown Merced to Downtown Fresno)	E99 (Merced Castle to Fresno East)
<i>Maximize Ridership/Revenue Potential.</i>				
Travel Time	VHS 18.5 minutes	VHS 17.6 minutes	VHS 21.0 minutes	VHS 24.0 minutes
	4	4	3	1
Length	55.30 miles 88.99 km	51.87 miles 83.48 km	57.42 miles 92.4 km	75.32 miles 121.21 km
	4	3		1
Population/Employment Catchment	*See Fresno Downtown Station option	*See Fresno West Station option	*See Fresno Downtown Station option	*See Fresno East Station option
	4	3	4	2
<i>Maximize Connectivity and Accessibility.</i>				
Intermodal Connections	*See Fresno Downtown Station option	*See Fresno West Station option	*See Fresno Downtown Station option	*See Fresno East Station option
	5	2	5	2
<i>Minimize Operating and Capital Costs.</i>				
Length	Short, but costly through urban areas	Less costly than other options	Less urban area than UP	Longer, goes well to the east of direct route
	3	3	3	2
Operational Issues	SP coordination full length	New alignment SP Merced	BNSF and Amtrak coordination	BNSF and Amtrak coordination
	3	3	3	3
Construction Issues	SP coordination full length Downtown Fresno and Merced	Merced downtown	BNSF/Amtrak coordination	New alignment/BNSF/New BNSF coordination
	3	4	3	3

Evaluation Criteria	UPRR (Downtown Merced to Downtown Fresno)	W99 (Merced Downtown to Fresno West)	BNSF (Downtown Merced to Downtown Fresno)	E99 (Merced Castle to Fresno East)
Capital Cost	High cost	Low cost	Moderate cost	Moderate cost
	1	5	3	3
Right-of-Way Issues/Cost	SP coordination and cost full length	Merced downtown New ROW	BNSF/Amtrak coordination	New ROW and BNSF
	2	3	3	3
<i>Maximize Compatibility with Existing and Planned Development.</i>				
Land Use Compatibility and Conflicts				
Percent of Conflicting Existing Land Uses within adjacent buffers (Residences, Institutions, Recreation, Parks, and Open Space)	18.83	23.57	25.11	23.10
	4	3	2	3
Visual Quality Impacts				
Scenic Corridor and River Crossings	2.00	2.00	2.00	2.00
	3	3	3	3
<i>Minimize Impacts on Natural Resources.</i>				
Water Resources Impacts				
Number of Natural Stream/Lake Crossings (linear ft)	9.00 (450)	13.00 (650)	23.00 (1,150)	34.00 (1,700)
Number of Wetland Crossings	6.00	18.00	20.00	28.00
Total Acreage of Wetlands Within ROW	4.39	25.18	77.78	82.75
	5	4	1	1

Evaluation Criteria	UPRR (Downtown Merced to Downtown Fresno)	W99 (Merced Downtown to Fresno West)	BNSF (Downtown Merced to Downtown Fresno)	E99 (Merced Castle to Fresno East)
<b>Floodplain Impacts</b>				
Number of FEMA Floodplain Crossings	13.00	18.00	20.00	14.00
Associated Length (meters) of Floodplain Crossings	20558.88	25308.03	15428.81	19050.25
Total Acreage of FEMA Floodplain Crossings	138.01	178.59	104.17	136.50
	3	2	4	3
<b>Threatened &amp; Endangered Species Impacts</b>				
Count of Species w/in ROW	2.00	2.00	20.00	19.00
Count of Species along ROW	1.00	0.00	0.00	0.00
Sensitive Habitat Acreage w/in ROW	0.00	38.24	83.52	83.52
Net Sensitive Habitat Acreage along ROW	0.00	121.01	252.10	252.10
	5	3	1	1
<i>Minimize Impacts on Social and Economic Resources.</i>				
<b>Environmental Justice Impacts (Demographics)</b>				
Minority Within 1,400' Buffer – 1990 Population	22376.00	10365.00	20469.00	9149.00
Low Income Within 1,400' Buffer – 1990 Households	209.00	164.00	0.00	0.00
	2	4	2	4
<b>Farmland Impacts</b>				
Total Acreage of Important Farmlands Within ROW (Prime, Unique, and Statewide Importance)	117.18	398.17	319.78	501.10
	5	2	3	1

Evaluation Criteria	UPRR (Downtown Merced to Downtown Fresno)	W99 (Merced Downtown to Fresno West)	BNSF (Downtown Merced to Downtown Fresno)	E99 (Merced Castle to Fresno East)
<i>Minimize Impacts on Cultural Resources.</i>				
<b>Cultural Resources Impacts</b>				
Number of National Register Resources Within ROW	0.00	0.00	0.00	0.00
Number of National Register Resources along ROW	2.00	1.00	0.00	0.00
	3	4	5	5
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>				
Total Acreage Parks/Recreation Areas in ROW	0.00	0.00	0.00	4.16
Total Acreage of Parks/Recreation Areas along ROW	0.00	0.00	1.01	12.41
Incidences of Parks/Recreation Areas in ROW	0.00	0.00	0.00	2.00
Incidences of Parks/Recreation Areas along ROW	0.00	0.00	2.00	3.00
	5	5	5	1
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>				
<b>Soils/Slope Constraints</b>				
Not a Distinguishing Factor				
<b>Seismic Constraints</b>				
Not a Distinguishing Factor				
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>				
<b>Hazardous Materials/Waste Constraints</b>				
Not a Distinguishing Factor				

1 2 3 4 5  
Least Favorable Most Favorable